



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,763	10/20/2003	Abdulahkem Y. Elezzabi	79783-5 /pw	9576
7590 12/15/2005			EXAMINER	
SMART & BIGGAR Station D 900-55 Metcalfe Street P.O. Box 2999 Ottawa, ON K1P5Y6 CANADA			DOAN, JENNIFER	
			ART UNIT	PAPER NUMBER
			2874	
			DATE MAILED: 12/15/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/687,763

Applicant(s)

ELEZZABI ET AL

Examiner

Jennifer Doan

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 12, 16 and 29 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18, 25 and 26 is/are allowed.
- 6) ☒ Claim(s) 1, 4-7, 14, 17, 19-22, 27, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 8-11, 13, 15, 23, 24, 28 and 32-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 072605.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group I in the reply filed on September 23, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Information Disclosure Statement***

2. The prior art documents submitted by applicant in the Information Disclosure Statement filed on 7/26/05, have all been considered and made of record (note the attached copy of form PTO-1449).

### ***Drawings***

3. The drawings, filed on 10/20/03, are accepted.

### ***Specification***

4. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 6, 7, 14, 17, 21, 22, 27, 30 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Minemoto et al. (U.S. Patent 6,542,647).

With respect to claims 1, 14, 17 and 27, Minemoto et al., in Figure 1 and abstract, disclose a magneto-optic modulator comprising: an optical waveguide (8, 9) comprising a magneto-optic active medium; a biasing magnetic field generator (4) adapted to apply a biasing magnetic field in said magneto-optic active medium (see abstract); and a magnetization modulator adapted to modulate a magnetization of the magneto-optic active medium; whereby during operation of the biasing magnetic field generator, the magnetization modulator causes modulation of an optical signal passing through the optical waveguide (see Figure 1).

With respect to claims 6, 7, 21 and 22, Minemoto et al., in abstract, disclose a magneto-optic modulator wherein the biasing magnetic field generator is adapted to

apply a biasing magnetic field such that the magneto-optic modulator operates in a non-resonant state and a resonant state (see abstract).

With respect to claims 30 and 31, Minemoto et al., in Figure 1 and abstract, disclose a media for magneto-optic modulation comprising: a magneto-optic active medium for magneto-optical modulation of an optical signal passing therethrough; a conducting medium located proximate to the magneto-optic active medium and adapted to generate a magnetic field for modulating a magnetization of the magneto-optic medium when a current is passed through said conducting medium (see Figure 1 and abstract). Also, Minemoto disclose wherein the magneto-optic active medium comprises a layer of magneto-optic active material.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 2874

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 4, 5, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minemoto et al. (as cited above).

With respect to claims 4, 5, 19 and 20, Minemoto et al. substantially disclose all the limitations of the claimed invention except the magneto-optic active medium includes a rare earth element substituted Iron Garnet and Bismuth substituted Yttrium Iron Garnet (Bi-YIG).

However, the magneto-optic active medium including a rare earth element substituted Iron Garnet and Bismuth substituted Yttrium Iron Garnet (Bi-YIG) are considered to be obvious. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the magneto-optic active medium of Minemoto's device by the material as claimed for the purpose of providing a high speed modulator to obtain higher efficiency of optical signal transmission. It is also noted that it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

***Allowable Subject Matter***

10. Claims 2, 3, 8-11, 13, 15, 23-24, 28 and 32-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 18, 25 and 26 are allowed.

The prior art of record fails to disclose or reasonably suggest a method of magneto-optic modulation of an optical signal propagating in a first direction through a magneto-optic active medium, the method comprising the steps of generating in the magneto-optic active medium a magnetic field in a third direction having a significant component parallel to the direction for modulating a magnetization of the magneto-optic medium.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Minemoto (U.S. 6,912,080) discloses a magneto-optic modulator.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Thursday from 6:00 am to 3:30 pm, second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone

Art Unit: 2874

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer Doan

Patent examiner

December 9, 2005